Other subjects referred to were the educational work of the Victoria and Albert Museum, the new advisory spirit in which the inspection of schools is to be carried on, and the provision by local authorities of a better system of training teachers than at present exists.

TWO pamphlets referring to the purpose and programme of the Faculty of Commerce of the University of Birmingham have been received. The Faculty will begin its work in October next and there will be matriculation examinations on June 2 and September 15. In the course of his prospectus, Prof. Ashley remarks that the object of the work to be carried on by this department of the University is the education, not of the rank and file, but of the officers of the industrial and commercial army: of those who, as principals, directors, managers, secretaries, heads of departments, &c., will ultimately guide the business activity of the country. The Faculty represents the first serious attempt to provide training of this kind, though every year shows the need of it. Prof. Ashley points out that the marked acceleration of the speed of industrial and commercial change, the application of science to machinery involving more frequent changes in manufacturing processes, and the extension of means of communication, call more and more for mental flexibility, alertness and adaptability on the part of traders. But such qualities are certainly not likely to be stimulated by early absorption in the subordinate routine of a particular occupation. There is, however, some chance of promoting them by courses of instruction which shall accustom the future trader to survey a wide range of industrial undertakings, to watch the development of the world's great markets, and to estimate the resources and capabilities of other nations. The curriculum which has been drawn up for the three years' course leading to the degree of Bachelor of Commerce in the University of Birmingham comprises studies which fall mostly into four main categories:—(1) languages and history; (2) accounting; (3) applied science and business technique; (4) commerce. The purpose of the scientific subjects included in the course is not to make men scientific experts. Its aim is (*a*) to make their business more interesting to them; (*b*) to enable them to follow the general movement of technological progress, and to realise the directions in which changes of process are probable or possible; (*c*) to show them when they ought to call in an expert, and how much weight they should attach to his opinion.

SCIENTIFIC SERIALS.

Journal of Botany, May.—Mr. Rudolf Beer describes a rare and remarkable conidia-bearing fungus, *Coemansiella Alabastrina*, which has only been recorded twice before. The conidiophore begins like Eruotium, but the sterigmata are few in number and grow out forming a circlet of arms; from each of these a series of conidia is cut off on the upper side. The conidia are fusiform and pointed at both ends. Chlamydospores and other conidial bodies were obtained in the culture, but no traces of perithecia were observed.—Mr. Pugsley has devoted considerable attention to the British "capreolate" Fumitories and submits the following classification:—Subsection 1. *Eucapreolatae.* Bracts as long as pedicel; pedicel recurved; fruit pendulous, narrow at the base. (1) *F. capreolata*, L. (=*F. pallidiflora*, Jord.). (2) *F. purpurea*, Pugsley, which refers to certain English plants named as *F. Boraei*, Jord., but differing from Jordan's original discription. Subsection 2. *Murales.* Bracts shorter; pedicels erect; fruit without a neck. (3) *F. muralis*, Sond. (includes *F. Boraei*, Jord.). (4) *F. confusa*, Jord.—Dr. Rendle describes three new species of Convolvulus from South Africa, a Convolvulus, and two Ipomæas which we regret to find are named after the collectors instead of receiving distinctive names.—Mr. G. C. Druce gives a list of Anglesey and Carnarvonshire plants and Mr. J. Hunter records North Donegal mosses.

Bulletin of the American Mathematical Society, vol. viii. (2) No. 7, April.—S. E. Slocum, on the transformation of a group into its canonical form. A discussion of the Lie group defined by $X_1=\delta/\delta x_2$, $X_2=x_2\delta/\delta x_2+\delta/\delta x_1$.—O. Dunkel, some applications of Green's theorem in one dimension. The theorem thus designated is an integral relation deduced from a linear differential equation and its adjoint. Some applications follow.—V. Snyder, on the forms of quintic scrolls.—E. V. Huntingdon, simplified definition of a group. This interesting paper defines a group as an assemblage of elements satisfying the three postulates: (1) Given any two elements a, b, there is an element x such that $ax=b$; (2) there is an element y such that $ya=b$; (3) if a, b, c, ab, bc, and either $(ab)c$ or $a(bc)$ are elements of the assemblage, then $(ab)c=a(bc)$. A finite group requires the additional postulate that the assemblage shall contain only n elements.—L. P. Eisenhart, on isotropic congruences.

SOCIETIES AND ACADEMIES.

LONDON.

Physical Society, May 23.—Prof. S. P. Thompson, president, in the chair.—Mr. T. C. Porter showed a lecture experiment on the ebullition of rotating water. If the water in a beaker, having approximately vertical sides, be caused to rotate about an axis concentric with the vertical geometrical axis of the beaker, it is obvious that in any horizontal section of the water the pressure is least in the centre and increases from the centre outwards. If the temperature of the water is just below boiling point and heat is supplied to it whilst it is rotating steam is formed only in the region of least pressure, and a gaseous core is produced. The rotation can be given to the water by stirring it with a glass rod covered with a piece of india-rubber tubing, and maintaining the stirring motion during the act of withdrawal of the rod. Some curious phenomena are shown by the column of steam, if the water is first stirred and then left to come to rest whilst the heating is continued. At first there is a markedly concave surface to the water in the beaker, and the column of steam is practically continuous from base to summit. After this stage pulsations set in. Pulsations can also be produced by stirring cold water in a beaker-shaped jar, having a small hole in its bottom through which a stream of air-bubbles can be blown. The forms of the steam columns in some cases present a likeness to those of solar prominences, and Mr. Porter suggested that the immediate cause of the latter might be the diminution of pressure on the sun's surface at, or near, the centre or centres of depressions caused by violent cyclonic disturbances in the solar atmosphere.—Mr. C. V. Boys exhibited a small heat engine in which rotating water evolved steam without ebullition.—A paper by Mr. J. A. Erskine on the conservation of entropy was read by the secretary. Heat energy may be expressed as the product of two factors—a quantity factor, entropy, and an intensity factor, temperature. The conservation of entropy holds in thermodynamics when dealing with reversible processes, and is analogous to the conservation of other quantity factors such as momentum, moment of momentum, and electric quantity. The author shows the completeness of the analogies by considering Carnot cycles carried out on electrostatic and hydraulic engines. Prof. Wiedeburg has proposed to extend the doctrine of the conservation of entropy to irreversible processes by introducing a new quantity analogous to electric resistance.—A paper by Sig. G. Giorgi on rational units of electromagnetism was read by Mr. Price. Mr. Price prefaced the reading of the paper by saying that both Prof. Fleming and Prof. Fessenden had advocated a partial change of units which would leave the most important ones unchanged, and the method employed by the author was similar to that adopted by Prof. Fessenden. The author starts with a set of three equations, which contain explicitly the four concrete units of E.M.F., M.M.F., electric current and magnetic current, together with that of activity, and considers them as fundamental in electromagnetism. Two fundamental units are required to express these quantities, and their product must reproduce the mechanical unit of activity. If the watt is assumed as unit of activity, there are two units ready made, the volt and the ampere, which satisfy the condition and may be considered fundamental. All concrete units in electricity and magnetism can be expressed in terms of these and the second as unit of time. In order to complete the system, a unit of length is required. The metre and kilogramme are consistent with the watt, and putting them together with the units enumerated in the paper, the author has built up an absolute metre-kilogramme-second system which comprises electric, magnetic and mechanical measures in a consistent frame.

Chemical Society, May 15.—Dr. W. H. Perkin, F.R.S., vice-president, in the chair.—The variation with temperature of the surface-tensions and densities of liquid oxygen, nitrogen, argon and carbon monoxide, by Messrs. E. C. C. Baly and